

*Prices and Specifications*

*August 1984*

MORROW



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This catalogue illustrates Morrow's comprehensive product line of business systems and peripherals. Morrow has developed this line to provide the kind of products that make the most sense to the independent person, — whether working at home or in a business.

Building high quality microcomputers at the lowest possible price is the company's strategy for serving the business market. The price conscious customer needs basic tools — not necessarily the latest bells and whistles, just tools that will do the job at an affordable price.

Morrow offers this market a variety of desk top computer systems, either floppy or hard disk based, as well as a transportable for people who need to take their work with them.

Each of these computer systems comes with disk drives, video display, business keyboard, and a complete set of general purpose business software.

If you need computer accessories, the Morrow product line includes a choice of high quality low-cost letter quality printers, a modem to connect your computer with the phone lines, networking systems that allow you to link individual workstations, as well as a complete selection of software and hardware upgrades that let your system expand with your needs.

Morrow's products use a straightforward component design which insures continued reliability. Should service ever be needed,

Morrow gives you the option of dealer support through Authorized Service Centers, or XEROX third party service at over 80 outlets nationwide.

All this from Morrow, a company that has been providing low-cost computer solutions since the beginning of the microcomputer revolution in the mid 1970's.

Take a look through this catalogue and see what Morrow has to offer. Then visit one of Morrow's more than 600 nationwide Authorized Dealers. For the name of your nearest Authorized Dealer call (800) 521-3493, or (415) 430-1970 in California.

## MICRO DECISION SYSTEMS

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Morrow reserves the right to change the prices or specifications of the products listed herein without obligation to notify any person of such changes.

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## MD1-E

MD1-E computer, software and terminal \$999

### DESCRIPTION:

A full-screen desk top computer outfitted as an ultra low cost word processor. The MD1-E is ideal for someone who wants an affordable word processor, and does not need other applications programs at this time. The single floppy disk drive will allow you to store up to 100 pages of text on each system disk.

### HARDWARE:

COMPUTER: *One double sided double density* soft sectored 5¼" floppy disk drive with a total of 384K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7" wide x 5.3" high x 11.3" deep □ Weight: 12 lbs.

TERMINAL: 12" diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad & 10 user definable function keys □ Dimensions: 13.5" high x 15.3" wide x 14.3" deep □ Weight: 30 lbs.

### SUPPLIED SOFTWARE:

CP/M 2.2 operating system □ New Word word processor □ Co-Pilot front end menu system



## MD3-E

MD3-E computer, software and terminal \$1499

### DESCRIPTION:

A full-screen desk top computer outfitted as a high performance, low-cost wordprocessor. The MD3-E is ideal for someone who wants an affordable wordprocessor, and does not need other applications programs at this time. The second drive provides the convenience of a larger floppy disk storage capacity.

### HARDWARE:

COMPUTER: *Two double sided double density* soft sectored 5¼" floppy disk drives with a combined total of 768K bytes of formatted storage □ Z80A CPU at 4 MHz □ 64K RAM, 4K ROM □ One Centronics parallel and two RS232C serial ports □ Switching power supply □ Dimensions: 16.7" wide x 5.3" high x 11.3" deep □ Weight: 14 lbs.

TERMINAL: 12" diagonal with P-31 green phosphor □ 80 characters x 24 lines with a 9 x 12 character field □ Detachable keyboard with 91 keys including a 14 key numeric key pad & 10 user definable function keys □ Dimensions: 13.5" high x 15.3" wide x 14.3" deep □ Weight: 30 lbs.

### SUPPLIED SOFTWARE:

CP/M 2.2 operating system □ New Word word processor □ Co-Pilot front end menu system □ *Correct-It spelling checker*



## MD2

MD2 computer with software and terminal \$1699

MD2 available without terminal for \$1299

### DESCRIPTION:

A full screen desk top computer system at the most affordable price. It provides the essential decision making and productivity tools for the consultant or work-at-home professional.

### HARDWARE:

**COMPUTER:** *Two single sided double density* soft sectored 5 1/4" floppy disk drives with a combined total of 372K bytes of formatted storage ☐ Z80A CPU at 4 MHz ☐ 64K RAM, 4K ROM ☐ One Centronics parallel and two RS232C serial ports ☐ Switching power supply ☐ Dimensions: 16.7" wide x 5.3" high x 11.3" deep ☐ Weight: 18 lbs.

**TERMINAL:** 12" diagonal with P-31 green phosphor ☐ 80 characters x 24 lines with a 9 x 12 character field ☐ Detachable keyboard with 91 keys including a 14 key numeric key pad ☐ All keys are user definable when using SmartKey II ☐ Dimensions: 13.5" high x 15.3" high x 14.3" deep ☐ Weight: 30 lbs.

### SUPPLIED SOFTWARE:

CP/M2.2 operating system ☐ New Word word processor ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Microsoft BASIC 80 & Pilot programming languages ☐ Co Pilot front end menu ☐ SmartKey II keyboard customizer



## MD3

MD3 computer with software and terminal \$1999

MD3 available without terminal for \$1599

### DESCRIPTION:

A full-screen desk top computer system that provides the convenience of a larger floppy disk storage capacity. The MD3 adds a data base management program and the easy to use Quest Bookkeeper system\* designed for the needs of the small business. *The MD3 now features a Morrow Modem and communications software.*

### HARDWARE:

**COMPUTER:** *Two double sided double density* soft sectored 5 1/4" floppy disk drives with a combined total of 768K bytes of formatted storage ☐ Z80A CPU at 4 MHz ☐ 64K RAM, 4K ROM ☐ One Centronics parallel and two RS232C serial ports ☐ Switching power supply ☐ Dimensions: 16.7" wide x 5.3" high x 11.3" deep ☐ Weight: 14 lbs.

**TERMINAL:** 12" diagonal with P-31 green phosphor ☐ 80 characters x 24 lines with a 9 x 12 character field ☐ Detachable keyboard with 91 keys including a 14 key numeric key pad ☐ All keys are user definable when using SmartKey II ☐ Dimensions: 13.5" high x 15.3" wide x 14.3" deep ☐ Weight: 30 lbs.

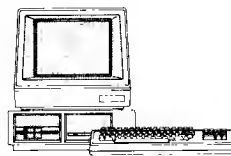
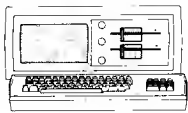
*Modem: 300 BAUD, Bell 103 compatible ☐ Connects to any U.S. phone with an RJ11c connector ☐ Line status detection ☐ On line commands ☐ Auto dial; rotary or Touch-tone*

### SUPPLIED SOFTWARE:

CP/M 2.2 operating system ☐ New Word word processor ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Microsoft BASIC 80 & Pilot programming languages ☐ Co-Pilot front end menu ☐ SmartKey II keyboard customizer ☐ Personal Pearl data base manager ☐ Reach Out communications software for Morrow Modem

### OPTIONAL SOFTWARE:

*Quest Bookkeeper System* provides integrated general ledger, accounts receivable and cash disbursements for the small business (\* Quest manual and software are provided free. A \$37.50 licensing fee is required to unlock the software for month-end-closing).



MD3-P complete computer with software \$1899

#### DESCRIPTION:

A complete transportable computer system for people who need to take their computers from job site to job site. The MD3-P is functionally identical to the MD3, and disk compatible with our complete line of full screen desk top computers.

#### HARDWARE:

**COMPUTER:** *Two double sided double density* soft sectored 5 1/4" floppy disk drives with a combined total of 768K bytes of formatted storage  
☐ Z80A CPU at 4 MHz ☐ 64K RAM, 4K ROM ☐ One Centronics parallel and one RS232C serial port ☐ Switching power supply

**VIDEO DISPLAY:** 5" x 9" screen with amber phosphor ☐ 80 characters x 24 lines with a 9 x 12 character field ☐ Detachable keyboard with 91 keys including a 14 key numeric key pad ☐ All keys are user definable when used with SmartKey II ☐ Dimensions: 18.5" wide x 7.25" high x 15.3" deep ☐ Weight: 30lbs. 4oz.

#### SUPPLIED SOFTWARE:

CP/M2.2 operating system ☐ New Word word processor ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Microsoft BASIC 80 & Pilot programming languages ☐ Co Pilot front end menu ☐ SmartKey II keyboard customizer ☐ *Personal Pearl data base manager*

#### OPTIONAL SOFTWARE:

*Quest Bookkeeper System* provides integrated general ledger, accounts receivable, and cash disbursements for the small business (Quest manual and software are provided free. A \$37.50 licensing fee is required to unlock the software for month-end-closing).

MD11 computer software and terminal \$2995

MD11 available without terminal for \$2595

#### DESCRIPTION:

A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD11 offers the optional Quest Accountant that provides for all the accounting needs of the small business or the independent CPA.

#### HARDWARE:

**COMPUTER:** *One 11 megabyte* 5 1/4" hard disk with 10.75 megabytes formatted ☐ *One double sided double density* soft sectored 5 1/4" floppy drive with 384K bytes formatted ☐ Z80A CPU at 4MHz ☐ 128K RAM, 8K ROM ☐ One Centronics parallel, two RS232C serial ports, plus a third serial port with RS232C and RS422 compatibility ☐ Dimensions: 16.7" wide x 5.3" high x 11.3" deep ☐ Weight: 22 lbs. 3 oz.

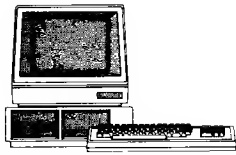
**TERMINAL:** 12" diagonal with P-31 green phosphor ☐ 80 characters x 24 lines with a 9 x 12 character field ☐ Detachable keyboard with 91 keys including a 14 key numeric key pad and up to 30 user definable function keys when used with a Morrow Micro Decision ☐ Dimensions: 13.5" high x 15.3" wide x 14.3" deep ☐ Weight: 30 lbs.

#### SUPPLIED SOFTWARE:

CP/M PLUS operating system ☐ New Word word processor ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Microsoft BASIC 80 & Pilot programming languages ☐ Co Pilot front end menu ☐ Personal Pearl data base manager

#### OPTIONAL SOFTWARE:

*Quest Bookkeeper II System:* integrated general ledger, cash disbursements accounts receivable with statements, and basic thirteen period business graphics (requires a \$37.50 licensing fee for month-end-closing). *Quest Accountant:* four modules including: accounts receivable with billing, general ledger with budgets, accounts payable, and inventory control (Quest Accountant available for \$295 each module).



## MD16

MD16 computer, software and terminal \$3495

MD16 available without terminal for \$3095

### DESCRIPTION:

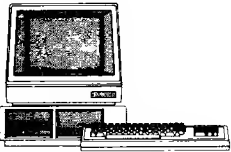
A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD16 offers the same performance and features of the MD11, but provides 50% more hard disk storage space.

**HARD DISK:** *One 16 megabyte 5¼" hard disk with 16.44 megabytes formatted*

## MORROW PRINTERS

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## MD34



MD34 computer, software and terminal \$4995

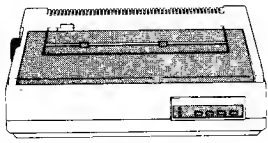
MD34 available without terminal for \$4595

### DESCRIPTION:

A full-screen desk top computer with the speed, convenience and large scale storage capacity of a hard disk system. The MD34 provides the same performance and features of the MD11, but provides 215% more hard disk storage space. A Micro Decision system with that much storage space would be particularly useful as a file server on a Morrow Network.

### HARD DISK:

*One 34 megabyte 5¼" hard disk with 34.48 megabytes formatted*



## MP 100

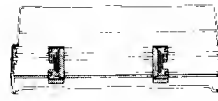
MP 100 12-14 CPS letter quality printer \$550

### DESCRIPTION:

A low cost letter quality daisy wheel printer with sophisticated word processing features of bi-directional printing, boldface, underscore, subscript and superscript.

### SPECIFICATIONS:

Print speed of 12 characters per second at 10 pitch, 14 characters per second at 12 pitch ☐ Centronics type parallel interface ☐ Maximum of 101 characters per line at 10 pitch, 121 characters at 12 pitch, and 151 characters at 15 pitch ☐ Front panel controls: on line, line feed, form feed, set top of form ☐ Optional tractor feed ☐ 65dB maximum noise level ☐ Power: 110v 60Hz (90-120 VAC) 70w maximum ☐ Dimensions: 17.5" wide x 5" high x 12.5" deep ☐ Weight: 18 lbs.



MPT 10 Tractor Feed for MP100 \$125

MPT 50 Tractor Feed for MP200/300 \$125

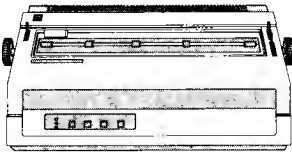
### DESCRIPTION:

Mechanism for guiding continuous form paper through a Morrow printer. Most useful when printing high volume, close tolerance work.

### SPECIFICATIONS:

Four pin engaged type tractor ☐ Bi-directional ☐ Paper empty detector ☐ Five phase paper tension adjustment ☐ MPT 10: 8.5 inch printing width, 9.5 inch paper width ☐ MPT 50: 13.2 inch maximum printing width, 15 inch maximum paper width.

## MP 200/MP 300



MP 200 16-17 CPS letter quality printer \$695

MP 300 27-31 CPS letter quality printer \$1195

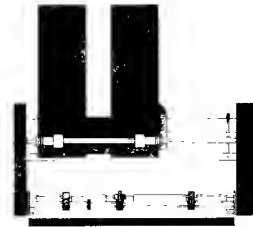
### DESCRIPTION:

Full size letter quality daisy wheel printer with sophisticated word processing features of proportional spacing, bi-directional printing, bold face, underscore, subscript and superscript.

### SPECIFICATIONS:

Letter quality daisy wheel printer ☐ *MP 200* print speed of 16 CPS at 10 pitch, 17 CPS at 12 pitch ☐ *MP 300* print speed of 27 CPS at 10 pitch, 31 CPS at 12 pitch ☐ Centronics type parallel interface ☐ Maximum of 132 characters per line at 10 pitch, 158 characters at 12 pitch, and 197 characters at 15 pitch ☐ Front panel controls: on line, line feed, form feed, set top of form ☐ Auto load single sheet paper function ☐ Optional tractor feed, and sheet feed ☐ 65dB maximum noise level ☐ Power: 110v 60Hz (90-120 VAC) 80w maximum ☐ Dimensions: 23" wide x 7.5" high x 14" deep ☐ Weight: 31 lbs.

## SHEET FEED



MPSF 25 Sheet Feeder for MP 200/300 \$595

### DESCRIPTION:

Mechanism for guiding individual sheets of stationary through an MP200 or 300 Morrow Printer. Most useful when printing large numbers of form letters on non-perforated letterhead stationary.

### SPECIFICATIONS:

Single bin holds up to 250 sheets of paper ☐ High reliability: mechanically driven, no motors, no electronics ☐ Easy installation and removal, no mounting hardware ☐ Manual paper feedingslot ☐ Adjustable paper positioning for easy set-up and variable paper width.





## PRINTER RIBBONS

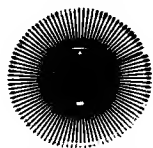
### RIBBONS FOR ALL MORROW PRINTERS:

MP 5503 Fabric	\$7.25
MP 5504 One time film	\$4.25
MP 5505 Multi strike film	\$8.25

*(Note: dealer must order print ribbons from  
Morrow in box of six.)*

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## PRINTER WHEELS



### WHEELS FOR ALL MORROW PRINTERS:

MP 6411 Courier 10-12 pitch	\$17.50
MP 6412 Courier 12-12 pitch	\$17.50
MP 6413 Gothic mini 15 pitch	\$17.50
MP 6414 Modern proportional spacing	\$17.50
<i>(for models MP200/300 only)</i>	

*(Note: Dealer must order print wheels from  
Morrow in a box of five.)*

MICRO DECISION SYSTEMS  
WITH PRINTERS

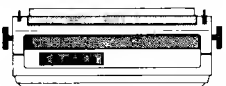
## MD1-E



MD1-E system ordered with MP100 (12-14 CPS)  
letter quality printer \$1449

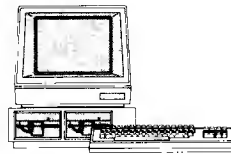


MD1-E system ordered with MP200 (16-17 CPS)  
letter quality printer \$1594

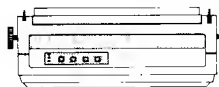


MD1-E system ordered with MP300 (27-31 CPS)  
letter quality printer \$2094

## MD 2



MD2 system ordered with MP100 (12-14 CPS)  
letter quality printer \$2149

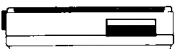


MD2 system ordered with MP200 (16-17 CPS)  
letter quality printer \$2294



MD2 system ordered with MP300 (27-31 CPS)  
letter quality printer \$2794

## MD3-E



MD3-E system ordered with MP100 (12-14 CPS)  
letter quality printer \$1949

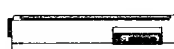


MD3-E system ordered with MP200 (16-17 CPS)  
letter quality printer \$2094



MD3-E system ordered with MP300 (27-31 CPS)  
letter quality printer \$2594

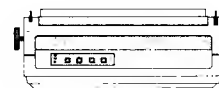
## MD 3



MD3 system ordered with MP100 (12-14 CPS)  
letter quality printer \$2449

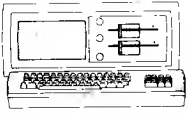


MD3 system ordered with MP200 (16-17 CPS)  
letter quality printer \$2594

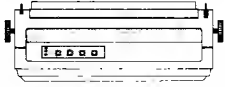


MD3 system ordered with MP300 (27-31 CPS)  
letter quality printer \$3094

## MD3-P



MD 3-P system ordered with MP100 (12-14 CPS)  
letter quality printer \$2349



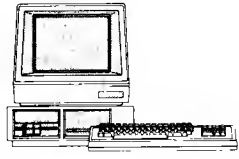
MD 3-P system ordered with MP200 (16-17 CPS)  
letter quality printer \$2494



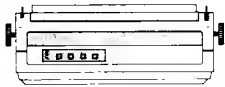
MD 3-P system ordered with MP300 (27-31 CPS)  
letter quality printer \$2994

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## MD 11



MD 11 system ordered with MP 100 (12-14 CPS)  
letter quality printer \$3445



MD 11 system ordered with MP 200 (16-17 CPS)  
letter quality printer \$3590



MD 11 system ordered with MP300 (27-31 CPS)  
letter quality printer \$4090

MICRO DECISION  
UPGRADES & PERIPHERALS

MM300 Morrow Modem and software \$299  
(specify desk top or portable)

#### DESCRIPTION:

The Morrow Modem provides the hardware and software for using the phone lines to link a Micro Decision to a remote computer, a commercial data base, or a Telex system.

#### HARDWARE:

300 BAUD; Bell 103 compatible ☐ Connects to any U.S. phone with an RJ-11c connector ☐ Line status detection ☐ On line commands ☐ Auto dial; rotary or Touch-tone

(Note: Micro Decisions with Rev. 1 boards require a separate power supply for the modem. Order an MM300-PS at a cost of \$50.)

#### SOFTWARE:

Menu driven commands ☐ Automatic Dialing and log-on from user directory ☐ Operates in batch or interactive mode ☐ Displayed data can be optionally printed or stored on disk ☐ Multiple file transfer protocols including file compression ☐ Includes Micro-ez-LNK for direct access to Western Union's EasyLink.

## MORROW NETWORK

MN hardware and software for network node \$299

#### DESCRIPTION:

The Morrow Network provides all the hardware and software needed for communication between work stations as well as shared access to peripherals and common data bases.

#### HARDWARE:

Hardware module for one work station on a network of Morrow Computers ☐ Connects to system serial port ☐ Network uses ordinary phone wire (not included) ☐ Hardware is PC BUS compatible

#### SOFTWARE:

Software library for one work station on Morrow Network ☐ Software includes utilities for all from private work stations to dedicated file servers ☐ Automatic and non-automatic file and record locking ☐ Software is PC NOS compatible

(Note: Morrow Network available Summer 1984)

MDCP88-128 Co-processor board with 128K RAM & software, installed by dealer \$499

MDCP88-256 Co-processor board with 256K RAM & software, installed by dealer \$699

(MD#)-MDCP88 Co-processor board with 256K RAM & software, specified with Micro Decision when system is originally ordered from the factory \$499

(MDCP88 boards available for the MD3 or 11 second quarter 84)

#### DESCRIPTION:

Expansion board that allows the Micro Decision to run 16 bit software. The board includes an 8088 microprocessor, additional RAM capacity, and makes the Micro Decision operating system compatible with the IBM PC.

#### HARDWARE:

Plugs into Z80A on the Micro Decision board ☐ Comes with 128K or 256K RAM ☐ Additional memory serves as a RAM disk when running under CP/M80 ☐ Can be bought from the factory with board installed, or can be installed by authorized service technician.

#### SOFTWARE:

MS-DOS operating system ☐ SuperCalc 2 for MS-DOS

# MICRO DECISION HARDWARE UPGRADES

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MD1-E — MD3-E Upgrades MD1-E from one double sided drive to two double sided drives ☐ Includes one drive and the Correct-It spelling checker \$499

MD3-E — MD3 Upgrades MD3-E into micro-computer complete with bundled software ☐ Includes SuperCalc electronic spreadsheet ☐ Personal PEARL data base manager ☐ Quest Bookkeeping system (Quest requires a \$37.50 licensing fee) ☐ Microsoft BASIC 80 & Morrow Pilot programming languages \$799

MD1-MD2 Upgrades MD 1 from one single sided drive to two single sided drives \$299

MD2-MD3 Upgrades MD 2 from two single sided drives to two double sided drives ☐ Includes Quest Bookkeeping System ☐ and Personal PEARL data base manager \$649

MDR1-MDR2 Upgrades Micro Decision from Revision 1 board to Revision 2 board, adds a Centronics parallel port \$450

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## MICRO DECISION OPTIONAL SOFTWARE

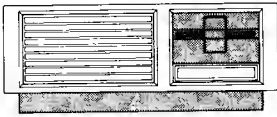
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Optional software available in Micro Decision format for Micro Decision owners.

New Word word processor	\$249
Novice New Word	\$ 50
WordStar	\$495
SuperCalc	\$195
SuperCalc II	\$295
Smart Checkbook	\$149
Personal Pearl for MD2	\$295
Word Index II	\$195
Quest Bookkeeper II: for MD3 licensed to run Quest Bookkeeper	\$ 50
Quest Accountant for MD11:	
Accounts Receivable with billing	\$295
General Ledger with budgets	\$295
Accounts Payable	\$295
Inventory Control	\$295

TRICEP MULTI-USER  
UNIX SYSTEMS

## TRICEP: T210



T210 Four user UNIX supermicro

\$8495

### DESCRIPTION:

A supermicro optimized for four users running UNIX System V on the 16/32-bit MC68000. This is a flexible system that can support more memory, more users, and provides the option of slave processors that access other operating systems such as MS-DOS.

### HARDWARE:

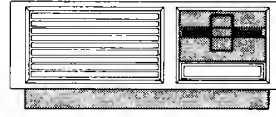
MC68000 CPU at 8 MHz with MC68451 Memory Management Unit ☐ 16 Megabyte 5 1/5" hard disk drive (85 msec average access) with HDC/DMA controller ☐ Double sided/double density 5 1/4" (400K bytes) floppy disk drive with DJ/DMA controller ☐ Four RS232C serial ports on SIO4/DMA controller ☐ 512K RAM with 150 nsec 64K DRAM's ☐ 14 slot IEEE 696/S-100 motherboard with programmable interrupt controller, realtime CMOS clock/calendar & Centronics parallel port ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

### SOFTWARE:

UNIX System V derived (with UniSoft enhancements) ☐ Optimizing C compiler

T210-4 T210 system ordered with four MT70 terminals \$10495

## TRICEP: T230



T230 High-speed four user UNIX supermicro

\$10495

### DESCRIPTION:

A high-speed supermicro optimized for four users running UNIX System V on the 16/32-bit MC68000. This model provides the same specifications as the T210 but has been enhanced by a faster 32 Megabyte hard disk, a 10 MHz CPU and 120 nsec DRAMs to provide accelerated performance.

### HARDWARE:

MC68000 CPU at 10 MHz with MC68451 Memory Management Unit ☐ 32 Megabyte 5 1/5" hard disk drive (45 msec average access) with HDC/DMA controller ☐ Double sided/double density 5 1/4" (400K bytes) floppy disk drive with DJ/DMA controller ☐ Four RS232C serial ports on SIO4/DMA controller ☐ 512K RAM with 120 nsec 64K DRAM's ☐ 14 slot IEEE 696/S-100 motherboard with programmable interrupt controller, realtime CMOS clock/calendar & Centronics parallel port ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

### SOFTWARE:

UNIX System V derived (with UniSoft enhancements) ☐ Optimizing C compiler

T230-4 T210 system ordered with four MT70 terminals \$12495

## TRICEP OPTIONS & UPGRADES

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**MM256KD** Additional 256K RAM board for 8 MHz TRICEP T210 systems □ Provides 64K Dynamic RAM chips with a 150 nsec access time  
**\$995**

**MM256KDH** Additional 256K RAM board for 10 MHz TRICEP T230 systems □ Provides high speed 64K Dynamic RAM chips with a 120 nsec access time  
**\$1295**

**A5-M5R** 5 Megabyte removable hard disk system for back up on TRICEP system □ Takes approximately eight minutes for each five megabytes of back up □ Comes complete with cabinet, fan, power supply and cable  
**\$1995**

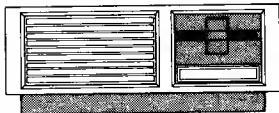
**SIO4/DMA** Second DMA Serial Input/Output board for TRICEP system □ Provides an additional four serial RS232C ports  
**\$795**

**SP188** Slave Processor board with an 80188 microprocessor at 8 MHz □ Provides MS-DOS compatibility □ Comes with 128K of dual port RAM (expandable to 512K)  
**\$TBA**

**T510** Factory installed upgrade for Decision 1 models D210 & D220 upgrading to a TRICEP model T210 □ Upgrade includes: MC68000 CPU board, SIO4/DMA board, 256KD RAM board and UNIX System V derived (with UniSoft enhancements)  
**\$TBA**

*(Note: A complete line of compatible add drive systems are listed at the end of the catalogue under DRIVES FOR S-100 SYSTEMS.)*

**DECISION 1 SYSTEMS  
& S-100 PERIPHERALS**



D120 Single user S-100 computer

\$4995

**DESCRIPTION:**

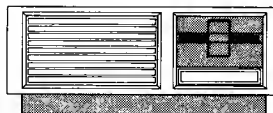
Sophisticated single user system for someone who needs the performance and flexibility of an S-100 bus computer. The system offers the possibility of expanding memory or upgrading to a multi-user system at a later date.

**HARDWARE:**

*One 5 1/4" double sided double density (400K bytes) floppy disk drive and DJ/DMA controller* ☐ *One 10 Megabyte 5 1/4" hard disk with HDC/DMA controller* ☐ Z80A CPU at 4 MHz ☐ 64K bytes of Static RAM ☐ S-100 (IEEE 696) 14 slot motherboard ☐ Realtime CMOS clock/calendar and programmable interrupt controller ☐ One parallel Diablo Hytype printer port (Centronics interface available as added option) and three RS232C serial ports ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

**SOFTWARE:**

CP/M2.2 operating system ☐ New Word word processing ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Personal PEARL data base manager ☐ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages



D200 Level I multi-user S-100 computer \$5695

**DESCRIPTION:**

A low cost multi-user system for up to *three* users. The system provides the performance and flexibility of an S-100 bus computer and offers the possibility of expanding memory or upgrading to a six-user system at a later date.

**HARDWARE:**

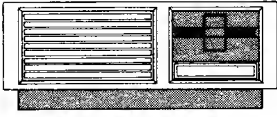
*One double sided double density 5 1/4" (400K bytes) floppy disk drive and DJ/DMA controller* ☐ *One 10 Megabyte 5 1/4" hard disk with HDC/DMA controller* ☐ Z80A CPU at 4 MHz ☐ 256K bytes of RAM ☐ S-100 (IEEE 696) 14 slot motherboard ☐ Hardware memory management ☐ Realtime CMOS clock/calendar and programmable interrupt controller ☐ One parallel Diablo Hytype - printer port (Centronics interface available as added option) and three RS232C serial ports ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

**SOFTWARE:**

*Micronix* operating system, Morrow's proprietary 8 bit implementation of the UNIX operating system with a CP/M 80 emulator ☐ CP/M2.2 operating system ☐ New Word word processing ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Personal PEARL data base manager ☐ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages



## DECISION 1 D210



D210 Level II multi-user S-100 computer \$5995

### DESCRIPTION:

A low cost multi-user system for up to *three* users. The system offers the same performance and specifications as the D200 but provides 50% more hard disk storage space.

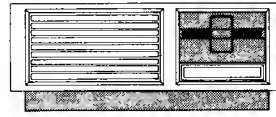
### HARDWARE:

One double sided double density 5¼" (400K bytes) floppy disk drive and DJ/DMA controller ☐ *One 16 Megabyte* 5¼" hard disk with HDC/DMA controller ☐ Z80A CPU at 4 MHz ☐ 256K bytes of RAM ☐ S-100 (IEEE 696) 14 slot motherboard ☐ Hardware memory management ☐ Realtime CMOS clock/calendar and programmable interrupt controller ☐ One parallel Diablo Hytype printer port (Centronics interface available as added option) and three RS232C serial ports ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

### SOFTWARE:

Micronix operating system, Morrow's proprietary 8 bit implementation of the UNIX® operating system with a CP/M 80 emulator ☐ CP/M 2.2 operating system ☐ New Word word processing ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Personal PEARL data base manager ☐ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages

## DECISION 1 D220



D220 Level III multi-user S-100 computer \$8495

### DESCRIPTION:

A low cost multi-user system for up to *six* users. The system provides the same performance and specifications as the D210 but provides additional RAM and I/O ports for three more users.

### HARDWARE:

One double sided double density 5¼" (400K bytes) floppy disk drive and DJ/DMA controller ☐ *One 16 Megabyte* 5¼" hard disk with HDC/DMA controller ☐ Z80A CPU at 4 MHz ☐ *512K bytes of* RAM ☐ S-100 (IEEE 696) 14 slot motherboard ☐ Hardware memory management ☐ Realtime CMOS clock/calendar and programmable interrupt controller ☐ *Two* parallel Diablo Hytype printer ports (Centronics interface available as added option) and *six* RS232C serial ports ☐ Dimensions: 19" wide x 20.5" deep x 7.5" high ☐ Weight: 40 lbs.

### SOFTWARE:

Micronix operating system, Morrow's proprietary 8 bit implementation of the UNIX® operating system with a CP/M 80 emulator ☐ CP/M 2.2 operating system ☐ New Word word processing ☐ Correct-It spelling checker ☐ SuperCalc spread sheet ☐ Personal PEARL data base manager ☐ Microsoft BASIC 80 & BaZic (NorthStar compatible BASIC) programming languages ☐ *Plus White-smith's C & Pascal programming languages.*

**D505** Whitesmith's C & Pascal (specify 5¼" or 8" media, CP/M or Micronix as the host operating system.) \$700

**D520** Centronics parallel printer interface kit for adapting Diablo Hytype parallel port to Centronics parallel. \$125

**D510** Multi-user upgrade kit for single user Decision I systems upgrading to three users (must have Morrow's hard disk and 400KB floppy drive). Kit includes: 256K bytes of dynamic RAM ☐ Micronix operating system \$1295

**D530** Additional multi-user up grade kit for three user Decision I upgrading to six users. Kit includes: additional 256K RAM board ☐ MI/O-S slave board with an additional three serial ports and one Diablo Hytype parallel port (support cables included) ☐ Whitesmith's C & Pascal. \$2500

**D###R** Rackmount option (add letter R to the end of model #). Includes: slides, dust cover and mounting hardware to convert desktop model into standard 19" rackmount unit. \$295

**MM65KS** High speed, low power 64K static RAM board with: 2K x 8 NMOS RAM chips (6116) ☐ Operating speeds up to 6MHz ☐ Extended addressing or bank select \$645

**MM256KD** High speed, low power 256K dynamic RAM board with: 4164 type 150NS RAM chips ☐ Operating speeds up to 6MHz ☐ Extended addressing ☐ Supports both 8 & 16 bit access as specified by S-100 bus standards ☐ 150NS typical access time, 350 NS minimum cycle time (as measured from pSTVAL) \$995

**DJ2D/B** Memory mapped floppy disk controller ☐ Runs single or double density soft sectored 8" IBM Standard 3740 format ☐ Can control up to four 8" soft sectored drives ☐ 1K RAM & 1K ROM ☐ Hardware UART ☐ Switch programmable baud rate generator for I/O interfacing \$955

**DJ/DMA** Direct Memory Access floppy disk controller including: DMA bus arbitration logic ☐ IEEE standard 24-bit memory addressing ☐ Resident disk driver routines ☐ Supports up to four 8" drives, and up to four 5¼" drives ☐ Onboard firmware supports soft sectored IBM compatible 8" and Micro Decision format 5¼" diskettes, as well as hard sectored NorthStar CP/M compatible 5¼" diskettes ☐ Automatically determines whether media is single or double density and calculates number of sectors per track \$695

**HDC/DMA** Direct Memory Access hard disk controller including: DMA bus arbitration as outlined by the IEEE 696 standards ☐ Controls 1 to 4 soft sectored Winchester 5¼" hard disk drives (ST506 compatible) ☐ Variable format (128, 256, 512, 1024 or 2048 byte sector lengths) under onboard software control ☐ Automatic error checking ☐ Addresses 1 to 8 heads per drive ☐ 24-bit address burst DMA transfers ☐ Maximum transfer rate of 625K BPS. \$695

**HDCA-4** I/O mapped controller for 8" or 14" hard disks with an SA4008 interface ☐ Controls up to four drives ☐ Onboard 512 byte sector buffer ☐ Incorporates intelligence to supervise all data transfers, communicating with the CPU via four I/O ports (command, two status, and data) ☐ Can generate an interrupt at the completion of each command. **\$795**

**MI/O-M** Master Input/Output controller ☐ Includes: 1 Diablo Hytype parallel port and three RS232C serial ports (8250 programmable) ☐ Realtime CMOS clock with programmable interrupt controller ☐ Includes support cables **\$595**

**MI/O-S** Slave Input/Output controller for additional three users ☐ Includes: 1 Diablo Hytype parallel printer port and three RS232C serial ports (8250 programmable) ☐ Realtime CMOS clock with programmable interrupt controller ☐ Includes support cables **\$695**

**WB-8** Eight slot S-100 bus board **\$165**

**WB-12** Twelve slot S-100 bus board **\$225**

**WBI/O-14** Fourteen slot S-100 bus board with input/output utilities ☐ Includes: Programmable interrupt controller (8259) ☐ Realtime clock (NEC 1990) ☐ Diablo Hytype parallel port ☐ Three RS232C (8250) serial ports. **\$595**

**WB-20** Twenty slot S-100 bus board **\$295**

**MPZ-80** S-100 central processing unit board ☐ Including: Z80A CPU at 4MHz ☐ 24 bit extended addressing ☐ Sophisticated trapping mechanisms and memory management ☐ Memory protection hardware ☐ 2K bootstrap PROM/monitor, and 1K RAM. **\$695**

*Boards listed on this price sheet will work in any standard IEEE 696 S-100 system with a minimum bus clock of 2.5 MHz. Please note that not all S-100 systems manufacturers adhere to the IEEE 696 standard throughout their product line. Therefore, MORROW does not guarantee the stated performance of these products in systems other than MORROW'S.*

#### DESCRIPTION:

The following floppy and hard disk systems are provided as additional drive options for S-100 systems. They can be acquired as a complete system that includes an S-100 controller, or as an add drive intended to be added to a system that already has an S-100 controller.

#### HARD DISKS: COMPLETE SYSTEMS

Including: drive ☐ S-100 controller ☐ Power supply ☐ Cabinet ☐ Fan ☐ Cables ☐ Install.com & sample I/O BIOS

**DMA-M10** 5¼" 10 Megabyte hard disk (formatted) with HDC/DMA controller **\$2295**

**DMA-M16** 5¼" 16 Megabyte hard disk (formatted) with HDC/DMA controller **\$2595**

**HDC-M10** 8" 10 Megabyte hard disk (formatted) with HDCA-4 controller **\$3995**

**HDC-M20** 8" 20 Megabyte hard disk (formatted) with HDCA-4 controller **\$4995**

#### HARD DISKS: ADD DRIVES

Including: drive ☐ Power supply ☐ Cabinet ☐ Fan ☐ Cables

**A5-M10** 5¼" 10 Megabyte hard disk **\$1795**

**A5-M16** 5¼" 16 Megabyte hard disk **\$2095**

**A8-M10** 8" 10 Megabyte hard disk **\$3495**

**A8-M20** 8" 20 Megabyte hard disk **\$4495**

*220V 50Hz hard disk systems cost an additional \$50 per drive flat rate (Add letter "E" to part number, e.g. DMA-M10E)*

# DRIVES FOR S-100 SYSTEMS

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## FLOPPY DISKS: COMPLETE SYSTEMS

Including: Drive ☐ S-100 controller ☐ Power supply ☐ Cabinet ☐ Cables ☐ CP/M2.2 & Microsoft BASIC 80

DF5124 5¼" double sided double density floppy drive (400K bytes) with DJ/DMA controller \$1095

DF811 8" single sided double density floppy drive (500K bytes) with DJ/DMA controller \$1395

DF812 8" double sided double density floppy drive (1 Megabyte) with DJ/DMA controller \$1695

DF821 Two 8" single sided double density floppy drives (1 Megabyte) with DJ/DMA controller \$2195

DF822 Two 8" double sided double density floppy drives (2 Megabytes) with DJ/DMA controller \$2795

## FLOPPY DISKS: ADD DRIVES

Including: Drive ☐ Power supply ☐ Cabinet ☐ Cables

A5124 5¼" double sided double density floppy drive (400K bytes) \$595

A811 8" single sided double density floppy drive (500K bytes) \$895

A812 8" double sided double density floppy drive (1 Megabyte) \$1195

A821 Two 8" single sided double density floppy drives (1 Megabyte) \$1595

A822 Two 8" double sided double density floppy drives (2 Megabytes) \$2195

*220V 50Hz floppy disk systems cost an additional \$50 per drive flat rate (Add letter "E" to part number, e.g. DF822E).*

**MORROW** 

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